

## REMARKS

The Examiner, Mr. Chen, is thanked for the courtesy extended applicants' representatives during the personal interview of June 14, 2006 and for which one of the inventors, Yoshhiro Shiroshi, attended by way of a telephone conference. At the interview, Mr. Shiroshi discussed the developments leading up to the present invention which is directed to a combination of a magnetic head having particular features and a magnetic recording medium having particular features, wherein the head enables a data transfer rate of more than 50 MB/s and a recording density of more than 5Gb/in<sup>2</sup> on the magnetic recording layer of the magnetic recording medium of a particular construction. It is noted that the aforementioned discussion is described in the Interview Summary.

In view of the discussion at the interview, independent claims 4 and 14 and the dependent claims have been amended in the manner discussed at the interview, and additionally, claim 18 and its dependent claims have been amended to utilize consistent language throughout. Further, new dependent claims 24 and 25 have been presented which further clarify features of the present invention. Additionally, minor informalities in the specification have been corrected, clarifying the description at page 12 in that the addition of the elements in an amount of 1 at% is sufficient, and in amounts greater than 15 at% was undesirable, as is apparent from Fig. 9 of the drawings, for example.

With regard to the amendment of independent claims 4 and 14, and therewith the dependent claims, claim 4 has been amended to recite the feature of a magnetic recording medium having a substrate and at least one magnetic recording layer formed above the substrate, a magnetic head enabling the data transfer rate of more than 50 MB/s and the recording density of more than 5Gb/in<sup>2</sup> on the magnetic

recording medium, with the magnetic head having the features as set forth, a R/W-IC, and that the at least one magnetic recording layer contains elements from the groups and in particular, at least one element selected from a third group as recited, with the at least one element selected from the third group being in an amount of 0.1 to 15 at%. Applicants note that independent claim 14 has been amended in a somewhat similar manner. With respect to claim 18, such claim has been amended to correct informalities and utilize consistent language throughout.

As to the rejection of claims 14 - 23 under 35 USC 112, first paragraph, this rejection is considered to be overcome by the amendments of claims 14 and 18 to utilize "5 Gb/in<sup>2</sup>", as described in the specification at page 6, line 27, for example, rather than the mistyping of such term as previously presented in claims 14 and 18 of "5GB/in<sup>2</sup>". Thus, applicants submit that by the present amendment, claims 14 - 23 should be considered to be in compliance with 35 USC 112, first paragraph.

As to the rejection of claim 18 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claim 1 of US Patent No. 6,404,605, as recognized by the Examiner, such rejection can be overcome by the submission of a Terminal Disclaimer. Without acquiescing in the propriety of the rejection as set forth, submitted herewith a Terminal Disclaimer with respect to US Patent No. 6,404,605, together with the statutory fee therefor, such that claim 18 and its dependent claims should now be considered to be in compliance with 35 USC 112, first paragraph and allowable with respect to US Patent No. 6,404,605. Accordingly, applicants submit that claim 18 and its dependent claims should now be in condition for allowance.

As to the rejection of claims 4, 7, 9, 10 and 13 - 17 under 35 USC 103(a) as being unpatentable over Crue et al (US 6,043,959) in view of Hong et al (US

6,423,430), Han et al (US 6,024,886), Cai et al (US 6,191,911) and Sedlmayr et al (US 5,761,166); the rejection of claim 6 under 35 USC 103(a) as being unpatentable over Crue et al in view of Hong et al and the other cited art, further in view of Linliu et al (US 5,773,199); the rejection of claim 8 under 35 USC 103(a) as being unpatentable over Crue et al in view of Hong et al and the other cited art, further in view of Shiratori et al (US 6,180,208); the rejection of claim 11 under 35 USC 103(a) as being unpatentable over Crue et al in view of Hong et al and the other cited art, further in view of Huber (US 6,178,144); and the rejection of claim 12 under 35 USC 103(a) as being unpatentable over Crue et al in view of Hong et al and the other cited art, and further in view of Yamashida et al (US 6,215,609); such rejections are traversed insofar as they are applicable to the present claims and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

At the outset, applicants note that all of the rejections, as set forth, are based upon the combination of Crue et al and Hong et al in combination with other cited art. Turning first to Crue et al, while the Examiner contends that this patent shows a magnetic head and teaches that the magnetic head is to be used for writing at high area densities and transferring data at high rates, as recognized by the Examiner, Crue et al does not disclose the utilization of the magnetic head thereof with a particular construction of magnetic recording layer to enable a data transfer rate of more than 50 MB/s and a recording density of more than 5Gb/in<sup>2</sup> on the magnetic recording medium, as claimed. More particularly, as described at page 12, lines 4 - 13 of the specification of this application, when recording and reading on the above medium, i.e., the magnetic recording medium as described at page 11, line 28 to page 12, line 3 of the specification, at 50 MB/s through the use of the magnetic head and circuit of the above construction, satisfactory recording was incapable due to a bad overwrite characteristic, etc., and besides noise increased twice or three times. Thus, as further described in the specification, the inventors considered that the phenomenon resulting in unsatisfactory recording was due to a bad frequency response in the recording characteristic of the medium and in particular, a problem in thermal fluctuations of magnetization and spin damping during the recording process. The inventors discovered that such phenomenon can be overcome by constructing a recording layer of the magnetic recording medium with a particular construction as described in the paragraph beginning at page 12, line 14 of the specification. Thus, as described, in order to effect recording on a magnetic recording medium with a data transfer rate of more than 50 MB/s and a recording density of more than 5 Gb/in<sup>2</sup>, it was necessary to provide a magnetic head and a magnetic recording layer having the particular features as now recited in claims 4

and 14 and the dependent claims thereof. As recognized by the Examiner, Crue et al does not disclose a magnetic recording medium having a magnetic recording layer as recited in the claims of this application application. Thus, applicants submit that all claims patentably distinguish over Crue et al in the sense of 35 USC 103 and should be considered allowable thereover.

Recognizing the deficiency of Crue et al, the Examiner cites Hong et al as showing a magnetic medium, and contends that it would be obvious to combine Crue et al and Hong et al to provide the claimed features. Contrary to the Examiner's characterization of Hong et al, applicants submit that Hong et al is directed to a magneto-optical recording medium which differs from a magnetic recording medium. More particularly, Hong et al, in column 1, describes the operation of a magnetic recording medium and that of a magneto-optical recording medium. For example, as described at column 1, lines 32 - 58 of Hong et al, Hong et al points out that the coercive force ( $H_c$ ) of a magneto-optical recording medium is about 5 to 10 times as high as that of a magnetic medium and it is very difficult to change a previous direction of magnetization with an external magnetic field. Accordingly, the recording of information on a magneto-optical recording layer is effected by first focusing a modulated laser beam on a surface of the layer, which laser beam powers sufficient to heat the layer locally, whereby a direction of magnetization can be changed with an external magnetic field. As described, the recording density of a magneto-optical recording medium is 10 to 1000 times greater than that of a conventional magnetic recording medium. As such, applicants submit that Hong et al is not directed to a magnetic recording medium, as claimed, but rather a magneto-optical recording medium, which as recognized by Hong et al, as well as those skilled in the art, differs from a magnetic recording medium in structure and operation. Applicants note that

as described in the paragraph at column 3, lines 8 - 17 of Hong et al, the objects of the invention of Hong et al is accomplished by providing a magneto-optical recording medium comprising a reproducing/recording bilateral structure. As described in column 4, lines 19 - 23 of Hong et al, "the recording layer and the reproducing layer, which are distinctive features of the invention, are made of (TbFeCoCr) and  $Nd_x (TbFeCoCr)_{100-x}$  respectively" (emphasis added). Thus, the recording layer and the reproducing layer are formed of different materials. As is apparent from column 4, lines 56 - 58, while both the reproducing layer and the recording layer utilize materials of "(TbFeCoCr)" in accordance with the disclosure and teaching of Hong et al, the recording layer does not utilize the material Nd, whereas the reproducing layer requires "Nd", which as indicated in column 4, lines 45 - 47 has significant influence upon the overall characteristics of the magneto-optical recording medium. Furthermore, looking to the claims of Hong et al, such claims all recite the materials of the reproducing layer which are distinguished from the materials of the recording layer. By the present amendment, claims 4 and 14 have been amended to recite the feature of the magnetic recording layer having particular material or elements. Although Hong et al discloses the utilization of the material "Gd" in combination with the material "Nd" as described in columns 6 and 7 of Hong et al for the reproducing layer, Hong et al provides no disclosure or teaching of a magnetic recording layer having the features as set forth in independent claims 4 and 14, in combination with a magnetic head, as defined, which enables a data transfer rate of more than 50 MB/s and a recording density of more than 5 Gb/in<sup>2</sup> on the magnetic recording medium. Thus, applicants submit that the combination of Hong et al and Crue et al fails to provide the claimed features as set forth in independent claims 4 and 14 and

the dependent claims in the sense of 35 USC 103, and all claims should be considered allowable thereover.

With regard to the addition of the other cited art to this combination, applicants submit that the other cited art does not overcome the deficiencies of the combination of Hong et al in combination with Crue et al, as pointed out above. Thus, applicants submit that irrespective of the disclosures of these additional references, the proposed combination with Crue et al and Hong et al does not provide the claimed features of independent claims 4 and 14 and the dependent claims in the sense of 35 USC 103, noting that claim 14, for example further recites the feature that the magnetic recording layer includes "magnetic crystal grains", and the dependent claims recite further features which are not disclosed or taught in the cited art. Applicants note that new dependent claims 24 and 25 clarify the features of the present invention that the recording layer enables reproduction therefrom. Thus, applicants submit that all claims patentably distinguish over the cited art in the sense of 35 USC 103 and should be considered allowable thereover.

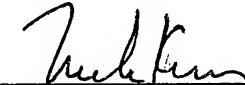
In view of the above amendments and remarks, applicants submit that all claims present in this application should be considered to be in compliance with 35 USC 112, claims 18 - 23 should be considered allowable in view of the submission of the Terminal Disclaimer and claims 4 - 17 recite features not disclosed or taught in the cited art and should be considered allowable thereover. Accordingly, issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli,

Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.37488CC5),  
and please credit any excess fees to such deposit account.

Respectfully submitted,

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